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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,539

09/19/2006

Tasuku Teshirogi

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EXAMINER

GALT, CASSI J

ART UNIT

PAPER NUMBER

3662

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,539	Applicant(s) TESHIROGI ET AL.	
	Examiner CASSI GALT	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/19/2006, 10/12/2007</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 9/19/2006 and 10/12/2007 are being considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission publication FCC 04-285 (FCC).

Regarding claim 1, Puglia teaches a radar device for a vehicle comprising: a transmitting unit (102, 104, 106, 108, 110, 112) which emits pulses (3:39-49), a receiving unit (112, 110, 108, 114, 116, 118) which receives a reflected wave (4:3-6), and a signal processing unit (12:11-14), wherein the transmitting unit has: a pulse generator (104, as per 3:39-42), and a burst oscillator (106) which performs an oscillation for a time corresponding to the width of the pulse signal (3:42-45).

Puglia does not teach that the width, cycle, and frequency of the emitted wave are set such that almost an entire main lobe of a spectrum of the emitted wave falls within a range of 24.0 to 29.0 GHz, and that a radiation power density in a prohibited band is lower than a peak radiation power density of the main lobe by not less than 20 dB. However, these operating parameters are mandated by the FCC for vehicular radar (FCC p. 51 (b)(2)). It would have been obvious to modify Puglia by choosing the width, cycle, and frequency of the emitted wave in this way in order to comply with FCC mandates on vehicular radar emissions.

Regarding claim 2, it would have been obvious to further modify Puglia such that the entire main lobe of the spectrum of the emitted wave falls within a range of 24.0 to 29.0 GHz in order to ensure compliance with FCC mandates on vehicular radar emissions.

Regarding claim 3, if almost an entire main lobe of a spectrum of the emitted wave falls within a range of 24.0 to 29.0 GHz, as is required by claim 1, a side lobe on the low-frequency side of the main lobe of the spectrum will almost necessarily overlap the emission prohibited band of 23.6 – 24.0 GHz mandated by the FCC (FCC p. 51 (b)(2)). In any case, it would have been obvious to further modify Puglia such that a side lobe on the low-frequency side of the main lobe of the spectrum overlaps the emission prohibited band in order to ensure compliance with FCC mandates on vehicular radar emissions.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission (FCC) publication FCC 04-285 (FCC) and further in view of Anderson (US 5,146,613).

Regarding claims 4-6, neither Puglia nor FCC 04-285 teach that the burst oscillator comprises the claimed features. However, Anderson teaches a radio transceiver (10) including an oscillator (20) comprising a signal inverter ("inverting

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amplifier” 22) and a feedback circuit (24) which delays an output signal from the signal inverter to feed back to an input, and a switch circuit (30) which sets the oscillator in an oscillation state only when desired (2:48-53). Anderson teaches that the transceiver is inexpensive and has low power consumption because the oscillator is used by both transmit and receive modes and is simple in design (2:56-65). It would have been obvious to further modify Puglia by using such an oscillator in order to achieve low cost and low power consumption.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission (FCC) publication FCC 04-285 and further in view of Khanna (US 4,733,199).

Regarding claims 7-9, neither Puglia nor FCC 04-285 teach that the burst oscillator comprises the claimed features. However, Khanna teaches a microwave frequency oscillator (100, ab. 2-3) comprising an amplifier (102), a resonator (134) connected to an output of the amplifier, and a feedback circuit (128) which performs positive feedback from an output side of the amplifier to an input side. Khanna also teaches a switch circuit (114) which sets the oscillator in an oscillation state only when desired, avoiding spurious frequencies in the output signal (2:55-60) attributed to leakage (1:67-2:2). It would have been obvious to further modify Puglia by using such an oscillator in order to avoid spurious frequencies in the output signal.

7. Claims 10-12, 15-17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission (FCC) publication FCC 04-285 and further in view of Panasik (US 6,668,008).

Regarding claims 10-12, neither Puglia nor FCC 04-285 teach that the transmitting unit has a filter that suppresses frequencies from 23.6 – 24.0 GHz (the FCC prohibited radio astronomy or exploration satellite service band). However, Panasik

teaches that it is conventional to use filters to suppress frequencies that may interfere with other users of a frequency band (1:46-55, esp. 54-55). It would have been obvious to further modify Puglia by using a filter to suppress frequencies from 23.6 - 24.0 GHz in order to comply with the FCC prohibition on transmission in the 23.6 – 24.0 GHz band.

Regarding claims 15-17 and 20, neither Puglia nor FCC 04-285 teach that the antenna element is surrounded by a cavity with a resonant frequency in the range 23.6 to 24.0 GHz (the FCC prohibited radio astronomy or exploration satellite service band). However, Panasik teaches that it is conventional to use filters to suppress frequencies that may interfere with other users of a frequency band (1:46-55, esp. 54-55), and it is well known that a cavity surrounding an antenna element acts as a filter. It would have been obvious to further modify Puglia by surrounding the antenna element with a cavity with a resonant frequency in the range 23.6 to 24.0 GHz in order to comply with the FCC prohibition on transmission in the 23.6 – 24.0 GHz band.

8. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission (FCC) publication FCC 04-285 (FCC), Anderson (US 5,146,613), and Panasik (US 6,668,008).

Regarding claims 13 and 18, the limitations of claims 13 and 18 do not differ from those of claims 10 and 15 and are rejected for the same reasons.

9. Claims 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Puglia (US 6,639,543) in view of the Federal Communications Commission (FCC) publication FCC 04-285, Khanna (US 4,733,199), and Panasik (US 6,668,008).

Regarding claims 14 and 19, the limitations of claims 14 and 19 do not differ from those of claims 10 and 15 and are rejected for the same reasons.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CASSI GALT whose telephone number is (571)270-1469. The examiner can normally be reached on Mon-Fri 7:30AM-5:00PM, Alt. Fri, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7/14/2008

CASSI GALT

Examiner, Art Unit 3662

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662

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